



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/957,833

10/27/97

SILVERS

R

RTI001XX

EXAMINER

LMC1/0909

WEINGARTEN, SCHURGIN  
GAGNEBIN & HAYS LLP  
TEN POST OFFICE SQUARE  
BOSTON MA 02109

NGUYEN, T

ART UNIT

PAPER NUMBER

2772  
DATE MAILED:

09/09/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

08/957,833

Applicant(s)

Robert S. Silvers

Examiner

Thu Nguyen

Group Art Unit

2772



☒ Responsive to communication(s) filed on Aug 2, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1, 3-15, 17-31, and 33-53 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1, 3-15, 17-31, and 33-53 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 1

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2772

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-15, 17-31 and 33-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al (Japan Document No. 8-55133).

As per claim 1, Fukushima et al teaches a method for generating a mosaic image with an appearance that approximates a target. The method comprises the steps of:

Loading the target image into the computer; dividing the target image into a plurality of tile regions (page 19, lines 7-24; page 18, lines 5-12); comparing the source images to the tile region to produce measurement of visual similarity and selecting the source image with the highest measurement of visual similarity to represent the tile region (page 25, lines 9-19); and positioning the selected source image at a locus corresponding to the locus of the tile region (page 20, lines 1-9; page 25, lines 20-22). Fukushima et al does not explicitly teach dividing the tile region into distinct sub-regions. However, since Fukushima et al teaches scanning the input images, displaying the image onto the computer display (page 15, lines 18-24 and page 20, lines 1-9), and computing the average value within each block (page 26, lines 19-24) and comparing

Art Unit: 2772

the average value of the tiles to the source images (page 26, lines 19-24; page 27, lines 17-22 and page 28, lines 1-14), it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the tile regions taught by Fukushima et al include plurality of subregions, each of the subregion includes a pixel and the average value of the tile is the average value of pixels; and the step of comparing the tiles of the target image with the source images include comparing the average value of the sub-regions (the pixels) as claimed.

As per claim 3, Fukushima et al does not explicitly teaches that each sub-region include one pixel, however, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the blocks (page 26, lines 19-21) taught by Fukushima et al comprises plurality of pixels since the pictures are scanned and displayed on the computer which uses pixels as a unit of picture value and picture displaying.

As per claim 4, Fukushima et al teaches computing the average value within a block (page 26, lines 19-24; page 27, lines 17-22 and page 28, lines 1-4). Fukushima et al does not explicitly teach the root mean square error as claimed. However, since Fukushima et al method can be used to compare the similarity of tiles of a picture, the root-mean square error method would have been an obvious modification of Fukushima et al teachings.

Art Unit: 2772

As per claim 5 and 12, Fukushima et al does not explicitly teaches removing the source images selected from consideration such that no one source image appears more than once in the mosaic image as claimed. However, since Fukushima et al teaches displaying facial image of a person by selecting from the data base the image of the most resembled face, Fukushima et al inherently teaches the claimed preventing a mosaic to be displayed more than once as claimed.

As per claim 6, Fukushima et al teaches capturing the source image and storing the captured source images in the database (page 24, lines 4-9).

As per claim 7, Fukushima et al teaches cropping the source image to squares (page 30, lines 7-16).

As per claim 8-9, Fukushima et al teaches cropping the captured image from center (page 17, lines 17-24; page 18, lines 1-8; page 24, lines 22-24 and page 25, lines 1-4). Fukushima et al does not teach cropping from center or above center depending on if the image is in landscape or portrait format. However, Fukushima et al teaches extracting the facial region which is necessary for identification and forming mosaic of the inside of the region with the block size depending on the center position and size of the region (page 18, lines 2-12; page 24, lines 1-9). It would have been obvious to a person of ordinary skill in the art at the time the invention was made that the claimed cropping from either the center or above the center of the image depending on if the

Art Unit: 2772

image is in landscape or portrait format in order to more likely include the more emphasized feature of the source image is just a modification of Fukushima et al teachings.

As per claim 10-11 and 14, Fukushima et al does not explicitly teach categorizing and subcategorizing the source image within the database and storing the source image at different level of resolutions as claimed. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to categorize and sub-categorize the source image and store the source image at different levels of resolution, the motivation for this would have been to allow searching the source image in just certain categories selected from the user at just certain location that has resolution closed to the target image; this would help save the searching time and limit reconstructing the target image with just the source image in the categories selected by the user.

As per claim 13, Fukushima et al does not teaches specifying at least one source image for assure inclusion into the mosaic image. However, Fukushima et al teaches positioning the mosaic image which has the highest measure of visual similarity to the corresponding locus of the tile region (page 20, lines 1-9; page 25, lines 20-22), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the source image of highest similarity as taught by Fukushima et al to the locus of the tile region. The motivation for

Art Unit: 2772

this would have been to insure a mosaic image which most closely represents the target image be formed from the source images in the database.

As per claim 15, 17-31, 33-53, refer to discussion in claim 1, 3-14 above. The claimed apparatus, article or storage medium are the extend of the claimed method above. Further, as to claims 26-27, 45-48, 50-53, the claimed editing software to edit images and printer for printing images, photograph, photographic paper and film, and storage mediums such as floppy disk, compact disc, hard disk or optical disk would have been well known to a person of ordinary skill in the art at the time the invention was made.

### ***Response to Arguments***

3. Applicant's arguments filed 8/2/99 have been fully considered but they are not persuasive.

On page 3, second paragraph, applicant argues that Fukushima does not teaches subdividing the blocks into subregions, even though applicant agrees that Fukushima teaches performing the comparison on a block-by-block basis. In page 20 section [0031] and [0032], Fukushima teaches representing a face with plurality of small mosaics; and based on the comparison of the small mosaics, determining the similarity of an input face and the faces in the data base. Fukushima does not explicitly teach subdividing the blocks (small mosaics) into subregions. However, in claim 3, applicant specifies that the subregion is a pixel, this means the comparison of the present invention is performed on pixel per pixel basis. On the other hand,

Art Unit: 2772

Fukushima teaches determining the similarity between the two image by the color or shade (page 15, lines 23-24 and page 19, last paragraph). It would have been obvious to a person of ordinary skill in the art at the time the invention was made that the color and shade are determined by the color and shade of the pixels constituting the facial image. Therefore, Fukushima indirectly teaches determining the similarity of an input face with the faces in the memory on pixel by pixel basis as the present invention.

Also, in page 3, last paragraph, applicant asserts that Fukushima does not teach positioning each selected source image in the mosaic image. However, in page 20 section [0031] and [0032], Fukushima teaches arranging blocks of an image as elements of a vector. It would have been obvious to a person of ordinary skill in the art at the time the invention was made that the order of an element of a vector indicates the position of the corresponding block. Fukushima does teach positioning the source image at a locus of the tile region (for example, the position of element X3 is positioned at the locus 3 in vector X, corresponding to the tile region Y3 at the locus 3 in vector Y).

Refer to discussion in claims 3-14, 17-48, section 35 USC 103 above, for discussion on the dependent claims.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



Art Unit: 2772

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**Any response to this final action should be mailed to:**

**Box AF**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 308-9051, (for formal communications; please mark "EXPEDITED  
PROCEDURE")

**Or:**

(703) 308-6606 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal  
Drive, Arlington, VA., Sixth Floor (Receptionist).

Art Unit: 2772

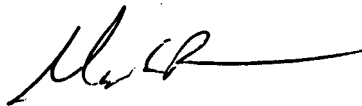
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 5:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Powell, can be reached on (703) 305-9703. The fax phone number for this Group is (703)308-6606 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)305-3900.

NTV

August 31, 1999

  
MARK R. POWELL  
SUPERVISORY PATENT EXAMINER  
GROUP 2700